

Impaired Vision as the Result of Sunstroke.

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*Read in the Section of Ophthalmology at the Fortieth Annual Meeting
of the American Medical Association, Newport, R. I., June, 1889.*

Reprinted from the "Journal of the American Medical
Association," December 7, 1889.

CHICAGO
PRINTED AT THE OFFICE OF THE ASSOCIATION
1889.

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IMPAIRED VISION AS THE RESULT OF SUNSTROKE.

My attention was called to this subject a few years since by the commissioner of pensions, who referred a number of cases to me for expert examination for alleged impaired vision as the result of sunstroke while in the service. Upon referring to works upon the eye and special articles treating the subject of sunstroke, I found little, of value bearing upon this point. Most articles discussing the etiology of atrophy of the optic nerve mentioned sunstroke as one of the causes; and treats upon the sequela of sunstroke mentioned blindness as one of them. But as to any information as to the frequency of atrophy of the optic nerve as the result of sunstroke, or as to the pathological conditions, the symptoms, diagnosis or treatment, these works make no mention; and the only report of cases that proved of any value in my researches was that of Dr. Hotz, in a paper entitled "Notes of Intra-ocular Lesions Produced by Sunstroke" (*American Journal of Medical Sciences*, July, 1879). In this paper Dr. Hotz reported a number of cases in which an ophthalmoscopic examination shortly after the sunstroke revealed an optic neuritis. In none of these cases was the swelling of the optic nerve excessive, and all recovered with vision little, if any, impaired, and a very slight, if any, atrophy. In the *Medical Record* of April 28, 1888, there appeared a paper by Dr. Thos. A. Spaulding, of Portland, Me., on the subject, a part of which was read at the preceding meeting of the American

Ophthalmological Society. In this paper it is stated that "no member present had ever heard of the sight being affected by sunstroke." As this statement appeared to be somewhat remarkable I addressed letters to a number of physicians who, owing to long experience in military and civil practice, I thought would have met such cases; but all the physicians to whom I addressed these letters answered that they had never met a case of blindness or impaired vision as the result of sunstroke.

Among 13 cases referred to me for expert examination with impaired vision, alleged as the result of sunstroke, I met three cases of simple hypermetropia, two of senile cataract, one of progressive myopia, one of detachment of the retina, and one of disseminated choroiditis, probably of syphilitic origin. Judging from these cases, and from the almost entire absence of references to this subject in medical literature, I am not surprised that many observers are inclined to doubt the existence of impaired vision as the result of insolation. I wish to put on record the following cases, which, to my mind at least, present conclusive evidence that vision is sometimes impaired as the result of sunstroke; and it is to be hoped that in the future the fundus of the eye will be carefully examined in all recent cases so that the frequency of optic neuritis as the result of this cause may be determined.

Case I.—Mr. H. M., aged 39, examined April 25, 1887. Had sunstroke while in the service July, 1864. Has had neuralgia and pain in the head almost continuously ever since; this is especially severe when exposed to heat. He followed his usual occupation as a miner for some years after returning from the army, but gradually became unfit for work and now has partial paralysis

of upper extremities. He has complained of impaired vision ever since he came out of the army, his sight being poor especially at night. Never associated the loss of sight with sunstroke. No other cause for neuralgia, paralysis, loss of sight and other nervous affections can be discovered. Partial white atrophy of optic disc; field of vision very much contracted; vision, left eye, $\frac{2}{3} \frac{0}{0}$ (Snellen); right eye, $\frac{2}{4} \frac{0}{0}$; refraction normal. A record taken five years previously showed no appreciable change in his field of vision.

Case 2.—Mr. A. J. W., farmer, aged 65; examined August 1, 1887. Had sunstroke in June, 1864. Has suffered from constant headache confined to right side of head. This side of the head is always more or less tender on pressure. Mind not very clear; prematurely old; slight paralysis of left side of body; dragging of left foot in walking; cannot bear heat of sun; always carries an umbrella when sun shines. Has fallen to the ground frequently during hot weather, and only resuscitated by cold water affusions. Complete white atrophy of outer half of optic disc of left eye, and inner half of right optic disc; left lateral hæminopsia; vision, left eye, $\frac{2}{1} \frac{0}{0}$; right eye, $\frac{2}{1} \frac{0}{0}$ (Snellen). I examined the eyes with the ophthalmoscope before taking field of vision, and was able to say, from the atrophic condition of the outer half of one optic disc and the inner half of the other, that the patient was suffering from hæminopsia.

Case 3.—Mr. J. T., aged 45; examined November 5, 1888. Had sunstroke in summer of 1864. Has been a constant sufferer from neuralgia, photophobia and other nervous affections since date of sunstroke. Has never been able to engage in any business or occupation. Does not venture outside of the house on days when the sun is

shining. He requires the same constant care and attention as a child six or eight years of age. There is complete white atrophy of the optic nerve of left eye. Veins are large and arteries very small. The blood-vessels about the disc are very tortuous, showing previous intense neuritis. Partial white atrophy of right optic disc. Blood-vessels somewhat tortuous, but not so much so as in the other eye. Vision left eye, slight perception of light; right eye, $1\frac{2}{50}$ (Snellen).

Case 4.—Dr. T., aged 57; examined April 15, 1889. In June, 1863, while in charge of a picket line as medical officer, he became insensible from sunstroke. He was totally blind for three days. His sight gradually returned, but with the field of vision extremely limited. He describes it as looking through two small gimlet holes. The brightest day appears to him as mere twilight, and at night he is almost completely blind. He has lost all color perception. Although he has had to avoid walking on the streets on hot days, and his general health has not been robust, he has proven himself a man of indomitable will, and, notwithstanding his impaired vision, he has been a successful practitioner of medicine, and still continues to do an office practice. He has white atrophy of both optic nerves of such a high degree that it seems remarkable that he can see at all. The field of vision is only about two inches in diameter at a distance of 12 inches. Vision right eye, $1\frac{2}{60}$, with 2 D. C. axis 90°= $1\frac{2}{60}$ (Snellen); vision left eye, $1\frac{2}{60}$, with 2 D. C. axis 90°= $1\frac{2}{60}$.

In addition to these cases, all of which occurred in old soldiers, I wish to report the following case, which very closely resembles those reported by Dr. Hotz:

Mr. H. B., aged 45, merchant. Had sunstroke

on July 4, 1886. First examined on August 5th of the same year. Patient suffering from headache, dizziness, nausea, occasional diplopia and dimness of sight. Ophthalmoscopic examination revealed an optic neuritis of both eyes; outlines of the disc could not be distinguished. Veins large, arteries small. Vision, right eye, $\frac{2}{40}$; left eye, $\frac{2}{60}$ (Snellen). Refraction normal. Have had the case under observation most of the time since the above date. At present there is no appreciable atrophy of optic nerve. There is a slight tortuosity of blood-vessels. Vision $\frac{2}{20}$ in either eye. Health good. No nervous disturbances except that the patient seems to be afraid that there is something serious going to happen, and makes the life of his medical adviser a burden by constant inquiries after this or that insignificant symptom.

In view of these cases, notwithstanding the fact that out of thirteen cases of alleged impaired vision as the result of sunstroke nine were found to be suffering from affections that could have no possible connection with this cause, I am led to believe that impaired vision does result from sunstroke in a large number of cases. We would expect this from an affection which produces such a profound impression upon the cerebral centres.

It is not necessary for me, before such an audience as this, to enter into a detailed account of the intimate relation existing between the optic nerve and the brain and its meninges. I wish simply to emphasize the importance of making an ophthalmoscopic examination of the *fundus oculi* in all cases of *coup de soleil*. This examination should be made immediately after the attack, at a somewhat more remote period, and in all cases where there is alleged impaired vision as the result of sunstroke, no matter if it be at a period many years afterward.

